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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03/09/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Detailed Action

Specification

1.   The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: MULTICAST COMMUNICATION METHOD USING LAYER 2 AND 3 SWITCHES.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2.   Claims 1, 2, 6, 9, 5, 8, and 12 rejected under 35 U.S.C. 102(e) as being anticipated by Matsunaga et al. (US 6,532,233 B1).

Consider claim 1, Matsunaga et al. teach a communication method in a multicast communication network **(i.e. multicast communication network containing a multicast communication apparatus)** for distributing a multicast packet from a multicast transmitting terminal (source, **i.e. server terminal**) through at least a Layer-2 switch **(i.e. network device, station)** to a plurality of multicast receiving terminals **(receivers, i.e. client terminals, terminals; see Matsunaga et al.; Abstract; Figure 1; teaches a communication through a multicast communication apparatus, a layer 2 network device, between a multicast server terminal and multicast client terminals)**, comprising forming a receiving terminal **(receiver; i.e. client terminal, terminal)** discrimination **(i.e. filtration)** mechanism for discriminating **(i.e. filtering)** multicast receiving terminals **(receivers; i.e. client terminals, terminals)** for receiving distribution of said **(i.e. downstream)** multicast packets **(see Matsunaga et al; col. 1 lines 5-10; teaches the filtering of downstream multicast packets to terminals)** and distributing multicast packets selectively **(i.e. distributing multicast packets to a group address)** by said receiving terminal **(receiver; i.e. client terminal, terminal)** discrimination **(i.e. filtration)** mechanism only to multicast receiving terminals **(receivers; i.e. client terminals, terminals)** requesting distribution of said multicast packets **(i.e. downstream packets)** when there are multicast receiving terminals **(receivers; i.e. client terminals, terminals)** relating to such requests under said L2 switches **(i.e. network devices, stations; see Matsunaga et al; col. 8 lines 28-42; teaches of distribution of multicast packets through filtering, destined to the group address of client terminals)**.

Consider claim 2, Matsunaga et al. teach a multicast receiving terminal (receiver, **i.e. client terminal, terminal**) for receiving distribution of multicast packets from a multicast transmitting terminal (source; **i.e. server terminal**) through at least a Layer- 2 switch **(i.e. network device, station, etc; see Matsunaga et al.; Figure 1; col. 5 lines 7-15; teaches of distribution of multicast packets destined to client terminal group addresses through center and subscriber stations which are layer 2 network devices)** provided with a discrimination packet **(i.e. IGMP Membership Report Message Packet)** transmitting function unit for generating a discrimination packet **(i.e. IGMP Membership Report Message Packet)** for teaching said Layer-2 switch **(i.e. network device, station)** of the existence of a multicast receiving **(i.e. requesting)** terminal **(i.e. client terminal, terminal etc)** requesting distribution of said multicast packets under it and transmitting it to said Layer-2 switch **(i.e. network device, station)** side **(see Matsunaga et al.; col. 1 lines 42-50; teach of an IGM Membership Report Message Packet that teaches a layer 2 station of a multicast requesting terminal).**

Consider claim 6, Matsunaga et al. teach a Layer-2 switch **(i.e. network device, station)** for relaying **(i.e. transferring)** a multicast packet transmitted from a multicast transmitting terminal (source; **i.e. server terminal, terminal)** and distributing it to a multicast receiving terminal (receiver; **i.e. client terminal; see Matsunaga et al.; Abstract; Figure 1; teaches a layer 2 station for transferring a multicast packet),**

provided with: a snooping **(i.e. listening to receive packets)** function unit for

monitoring for a discrimination packet **(i.e. IGMP Membership Report Message**

Packet) transmitted from said multicast receiving terminal **(receiver; i.e. client**

terminal, terminal) so as to teach said Layer-2 switch **(i.e. network device, station)**

that there is a multicast receiving terminal **(receiver; i.e. client terminal, terminal)**

requesting distribution of said multicast packets existing under it **(see Matsunaga et al.;**

col. 6 lines 46-55; teaches of center and subscriber stations receiving the report

message packet from client terminal; col. 1 lines 42-50; teaches of an IGMP

Membership Report Message Packet that teaches a layer 2 station of a multicast

terminal) and a learning **(i.e. transmitting Membership Query Message)** function unit

for learning the existence of said multicast receiving terminal based on said

discrimination packet **(i.e. IGMP Membership Report Message Packet)** extracted by

said snooping **(i.e. listening to receive packets)** function unit **(see Matsunaga et al.;**

col. 1 lines 42-50; teaches the transmission of the Membership Query Message to

all multicast terminals to query continuation of the distribution of the multicast

packet and retrieve follow up IGMP Membership Report Message Packet) .

Consider claim 9, Matsunaga et al. teach a Layer-3 switch **(i.e. network device,**

station) for further relaying multicast packets transmitted from a multicast transmitting

terminal (source; **i.e. server terminal)** through at least a Layer-2 switch **(i.e. network**

device, station) and distributing it to a multicast receiving terminal **(receiver; i.e. client .**

terminal, terminal) and for transmitting a discrimination packet **(i.e. IGMP Membership**

Report Message Packet; see Matsunaga et al; col. 5 lines 40-48; col. 6 lines 6-22;

teaches of layer 3 switches that distributes, to a client terminal, multicast

messages) teaching said Layer- 2 switch **(i.e. network device, station)** that there is a

multicast receiving terminal **(receiver; i.e. client terminal, terminal)** requesting

distribution of said multicast packets existing under it to said Layer-2 switch **(i.e.**

network device, station) side (see Matsunaga et al; col. 1 lines 42-50; teaches of

the report message packet that teaches a layer 2 station of a multicast requesting

terminal), provided with: a decision **(i.e. processing)** function unit for deciding if a

received packet is a discrimination packet **(i.e. IGMP Membership Report Message**

Packet) or a general packet **(i.e. IP packer, other packet)** other than a discrimination

packet **(i.e. IGMP Membership Report Message Packet; see Matsunaga et al; col. 5**

lines 40-48; teaches of recepting packets to differentiate between IP and IGMP

packets) and a header processing function unit for processing an MAC header **(i.e.**

layer 2 header) of said received packet **(see Matsunaga et al.; col. 5 lines 64-67; col.**

6 lines 1-5; teaches of processing a layer 2 header) and performing different

processing in accordance with results of decision of said decision **(i.e. processing)**   ·

function unit **(see Matsunaga et al.; col. 6 lines 2-5; teaches of processing in**

accordance with processing function unit).

Consider claim 5, Matsunaga et al. teach a multicast receiving terminal (receiver;

i.e. client terminal, terminal), transmitting said discrimination packet **(i.e. IGMP**

Membership Report Message Packet) when sending an IGMP-JOIN packet **(i.e.**

joining a multicast group to receive multicast packet; see Matsunaga et al.; col. 6

lines 46-55; teaches the client terminal transmitting a IGMP Membership Report

Message packet to join a multicast group and receive multicast packets).

Consider claim 8, Matsunaga et al. teach a Layer-2 switch (i.e. network device,

station), wherein said learning (i.e. transmitting Membership Query Message)

function unit includes a distribution table (i.e. transfer control table), said distribution

table (transfer control table) learns (i.e. registers) said IP source address (i.e. layer 3

address) and MAC source address (i.e. layer 2 address), then multicast packets

transmitted from said multicast transmitting terminal (source; i.e. server terminal) are

distributed in accordance with said distribution table (i.e. transfer control table; see

Matsunaga et al.; col. 3 lines 18-67; col. 4 lines 1-4; teaches transfer control table

that registers layer 2 addresses and transfers multicast packets to a

corresponding port when address of a destination of a multicast packet is

registered).

Consider claim 11, Matsunaga et al. teach a lyer-3 switch (i.e. network device,

station) as set forth in claim 9, wherein said header processing function unit does not

process the source address of said MAC header when said decision function unit

decides that said received packet is a discrimination packet (i.e. IGMP Membership

Report Message Packet; see Matsunaga et al.; col. 5 lines 40-48 ; teaches that the

MAC header isn't processed when a packet is an IGMP message) and performs

general rewriting processing (i.e. layer 2 bridging) on said MAC header when it decides that said received packet is a general packet (**see Matsunaga et al.; col. 7 lines 34-45; teaches rewriting processing on MAC header when said received packet is a general packet**).

Consider claim 12, Matsunaga et al. teaches a layer-3 switch (**i.e. network device, station**), wherein said decision function unit decides if said received packet is a discrimination packet (**i.e. IGMP Membership Report Message Packet**) or a general packet (**i.e. IP packet, other packet; see Matsunaga et al.; col. 5 lines 40-48; teach deciding whether the packet is an IGMP or other packet** in accordance with whether said IP header and MAC header of a received packet are a multicast type address or unicast type address (**see Matsunaga et al.; col. 5 lines 52-67; col. 6 lines 1-5; teach decision based on IP address and MAC address that distinguishes multicast and unicast addresses**).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 3, 4, 7, 10, and 11 rejected under 35 U.S.C. 103(a) as being unpatentable

over Matsunaga et al. (US 6,532,233 B1), and further in view of RFC 3376.

Consider claim 3 **Matsunaga et al.** discloses a multicast receiving terminal

(receiver; **i.e. receiver terminal**) wherein said discrimination packet **(i.e. IGMP**

Membership Report Message Packet) includes an IP header and MAC header **(i.e. is**

encapsulated; see Matsunaga et al.; col. 8 lines 3-12; col. 8 lines 21-28; teaches

how the information in the table, MAC address and IP address information, is

used to forward an IGMP Membership Report Message which contains

encapsulated information), however **Matsunaga et al.** does not specifically disclose

wherein the IP source address and MAC source address are an IP address and MAC

address **(i.e. header information)** of a multicast group to which said multicast receiving

terminal (receiver; **i.e. client terminal, terminal)** belongs. RFC 3376 discloses wherein

the IP source address and MAC source address are an IP address and MAC address

(i.e. header information) of a multicast group to which said multicast receiving terminal

(receiver; **i.e. client terminal, terminal**) belongs **(see RFC 3376; page 13 "Membership Report Message Format"; page 14 "Group Record Formal"; page 15 "Multicast Address"; teaches of the IP address and MAC address of a multicast group being a header of the message)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of **Matsunaga et al.** by wherein the IP source address and MAC source address are an IP address and MAC address **(i.e. header information)** of a multicast group to which said multicast receiving terminal (receiver; **i.e. client terminal, terminal**) belongs, as taught by RFC 3376, thereby following a standard.

Consider claim 4 **Matsunaga et al.** discloses a multicast receiving terminal (receiver; **i.e. client terminal, terminal**) as set forth in claim 2, transmitting said discrimination packet **(i.e. IGMP Membership Report Message Packet)** periodically **(see Matsunaga et al.; col. 1 lines 43-59; teaches periodically transmitting membership query message signifying transmission of IGMP report message packet by terminal)**, however **Matsunaga et al.** does not specifically disclose transmitting discrimination packet **(i.e. IGMP Membership Report Message Packet)** periodically by unicast. RFC 3376 discloses transmitting discrimination packet **(i.e. IGMP Membership Report Message Packet)** periodically by unicast **(see RFC 3376; page 18 "IP Destination Address for Report"; teaches IGMP reports sent through unicast)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of **Matsunaga et al.** by transmitting discrimination packet **(i.e. IGMP Membership Report Message Packet)** periodically by unicast, as taught by RFC 3376, thereby following a standard.

Consider claim 7 **Matsunaga et al.** discloses layer-2 switch **(i.e. network device, station)** wherein said discrimination packet **(i.e. IGMP Membership Report Message Packet)** includes an IP header and MAC header **(i.e. is encapsulated; see Matsunaga et al.; col. 8 lines 3-12; col. 8 lines 21-28; teaches how the information in the table, MAC address (i.e. layer 2 information) and IP address information, is used to forward an IGMP Membership Report Message which contains encapsulated information)**, however **Matsunaga et al.** does not specifically disclose wherein the IP source address and MAC source address are an IP address and MAC address **(i.e. header information)** of a multicast group to which said multicast receiving terminal (receiver; **i.e. client terminal, terminal)** belongs. RFC 3376 discloses wherein the IP source address and MAC source address are an IP address and MAC address **(i.e. header information)** of a multicast group to which said multicast receiving terminal (receiver; **i.e. client terminal, terminal)** belongs **(see RFC 3376; page 13 "Membership Report Message Format"; page 14 "Group Record Formal"; page 15 "Multicast Address"; teaches of the IP address and MAC address of a multicast group being a header of the message)**.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the invention of **Matsunaga et al.** by wherein the IP source address

and MAC source address are an IP address and MAC address **(i.e. header**

information) of a multicast group to which said multicast receiving terminal (receiver;

i.e. client terminal, terminal) belongs, as taught by RFC 3376, thereby following a

standard.

Consider claim **10 Matsunaga et al.** discloses a layer 3 switch **(i.e. network**

device, station) wherein said discrimination packet **(i.e. IGMP Membership Report**

Message Packet) includes an IP header and MAC header **(i.e. is encapsulated; see**

Matsunaga et al.; col. 8 lines 3-12; col. 8 lines 21-28; teaches how the information

in the table, MAC address and IP (I.e. layer 3 information) address information, is

used to forward an IGMP Membership Report Message which contains

encapsulated information), however **Matsunaga et al.** does not specifically disclose

wherein the IP source address and MAC source address are an IP address and MAC

address **(i.e. header information)** of a multicast group to which said multicast receiving

terminal (receiver; **i.e. client terminal, terminal)** belongs. RFC 3376 discloses wherein

the IP source address and MAC source address are an IP address and MAC address

(i.e. header information) of a multicast group to which said multicast receiving terminal

(receiver; **i.e. client terminal, terminal)** belongs **(see RFC 3376; page 13**

"Membership Report Message Format"; page 14 "Group Record Formal"; page 15

"Multicast Address"; teaches of the IP address and MAC address of a multicast

group being a header of the message).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the invention of **Matsunaga et al.** by wherein the IP source address

and MAC source address are an IP address and MAC address **(i.e. header**

information) of a multicast group to which said multicast receiving terminal (receiver;

i.e. client terminal, terminal) belongs, as taught by RFC 3376, thereby following a

standard.

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